

## 2009 AIAA Journal Index

### How to Use the Index

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**J09-143** Extension of a Multiscale Particle Scheme to Near-Equilibrium Viscous Flows  
**J09-210** Numerical Study of Mach 6 Boundary-Layer Stabilization by Means of a Porous Surface  
**J09-128** Three-Dimensional Simulation of the Electric Field and Magnetohydrodynamic Power Generation During Reentry  
**J09-208** Studies on Unsteady Shock Interactions Near a Generic Scramjet Inlet  
**J09-019** Procedure to Validate Direct Numerical Simulations of Wall-Bounded Turbulence Including Finite-Rate Reactions  
**J09-076** Using Pressure- and Temperature-Sensitive Paint on the Aftbody of a Capsule Entry Vehicle

**J09-203** Aero-Optic Distortion in Transonic and Hypersonic Turbulent Boundary Layers

**J09-226** Shock-Train Structure Resolved with Absorption Spectroscopy Part II: Analysis and CFD Comparison

**J09-225** Shock-Train Structure Resolved with Absorption Spectroscopy Part I: System Design and Validation

### **Inlet, Nozzle, Diffuser, and Channel Flows**

**J09-243** Numerical Analysis of Film Cooling in Advanced Rocket Nozzles

**J09-264** Initial Perturbation Amplitude of Liquid Sheets Produced by Jet-Impingement Nozzles

**J09-241** Numerical Analysis of Three-Dimensional Flow of Supercritical Fluid in Cooling Channels

**J09-145** Experimental Investigation of Unstart in an Inlet/Isolator Model in Mach 5 Flow

**J09-246** Molecular Tagging Using Vibrationally Excited Nitric Oxide in an Underexpanded Jet Flowfield

**J09-267** Hysteric Phenomenon of Underexpanded Moist Air Jet

**J09-162** Shock-Wave/Boundary-Layer Interactions in a Model Scramjet Intake

### **Jets, Wakes, and Viscid-Inviscid Flow Interactions**

**J09-074** Planar Fluorescence Imaging and Three-Dimensional Reconstructions of Capsule Reaction-Control-System Jets

**J09-195** Mode Conversion in Acoustically Modulated Confined Jets

**J09-273** Development of a High-Speed Three-Dimensional Flow Visualization Technique

**J09-111** Large-Eddy Simulation of a Round Jet in Crossflow

**J09-105** Role of Jet Temperature in Correlating Jet Noise

**J09-258** Variable-Frequency Fluidic Oscillator Driven by a Piezoelectric Bender

**J09-235** Experimental Studies on the Limiting Tab

**J09-177** Large-Eddy Simulations of a Supersonic Jet and Its Near-Field Acoustic Properties

**J09-104** Experimental Investigation of the Jets in Crossflow: Nonswirling Flow Case

**J09-216** Axisymmetric Synthetic Jets: An Experimental and Theoretical Examination

**J09-130** Instantaneous Flame Anchor Measurements Behind a Rearward-Facing Step

**J09-221** Exploring Mechanisms of Fluidic Thrust Vectoring Using a Transverse Jet and Suction

**J09-193** Experimental Investigation of Screech-Tone Characteristics of Jet Interaction with a Flat Plate

**J09-139** Flowfield Downstream of Circular Cylinders Immersed Within Thick Boundary Layers

**J09-231** Mach Wave Radiation from High-Speed Jets

**J09-152** Smoke-Wire Flow Visualization in Separated Flows at Relatively High Velocities

**J09-167** Planar Velocimetry of a Fin Trailing Vortex in Subsonic Compressible Flow

**J09-141** Acoustic Measurements of High-Speed Jets from Rectangular Nozzle with Thrust Vectoring

**J09-026** Model for Deformation of Drops and Liquid Jets in Gaseous Crossflows

**J09-042** Flat-Plate Interaction with the Near Wake of a Square Cylinder

**J09-120** Vortex Roll-Up Criterion for Synthetic Jets

**J09-009** Active Control of a High Reynolds Number Mach 0.9 Axisymmetric Jet

**J09-004** Cross-Spectral Analysis of the Pressure in a Mach 0.85 Turbulent Jet

**J09-012** Direct and Large-Eddy Simulations of Merging in Corotating Vortex System

**J09-260** Assessment of Computational Fluid Dynamics for Supersonic Shock Containing Jets

**J09-267** Hysteric Phenomenon of Underexpanded Moist Air Jet

**J09-173** Simulation of Noise Generation in the Near-Nozzle Region of a Chevron Nozzle Jet

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**J09-108** Interfacial-Area Transport Equation at Reduced-Gravity Conditions

**J09-119** Development of Homogeneous Water Condensation Models Using Molecular Dynamics

**J09-064** Incipient Cavitation Studied Under Strong Thermodynamic Effect

**J09-236** Analysis of Ultraviolet Radiation Predictions from High Altitude Two-Phase Plumes

**J09-264** Initial Perturbation Amplitude of Liquid Sheets Produced by Jet-Impingement Nozzles

**J09-247** Novel Technique for Measurements of Continuous Liquid Jet Core in an Atomizer

**J09-277** Ghost Fluid Methods for Strong Shock Interactions Part 1: Fluid-Fluid Interfaces

**J09-278** Ghost Fluid Methods for Strong Shock Interactions Part 2: Immersed Solid Boundaries

### **Plasmas and MHD**

**J09-154** Phase Synchronization of Vortex Shedding from Two Circular Cylinders Using Plasma Actuators

**J09-128** Three-Dimensional Simulation of the Electric Field and Magnetohydrodynamic Power Generation During Reentry

**J09-050** Asymptotic Solutions for Low-Magnetic-Reynolds-Number Gas Flows Inside a Two-Dimensional Channel

**J09-091** Accurate and Robust Pressure Weight Advection Upstream Splitting Method for Magnetohydrodynamics Equations

**J09-132** Spatially Distributed Forcing and Jet Vectoring with a Plasma Actuator

**J09-147** Sensitivity Derivatives for Plasma Discharge Simulations

**J09-253** Numerical Investigation of Decomposed Magnetofluid Dynamics Equations

**J09-283** Interaction of a Microwave-Generated Plasma with a Hemisphere Cylinder at Mach 2.1

**J09-013** Flow Separation Control by Plasma Actuator with Nanosecond Pulsed-Periodic Discharge

**J09-106** Rotational and Vibrational Temperature Distributions for a Dielectric Barrier Discharge in Air

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**J09-119** Development of Homogeneous Water Condensation Models Using Molecular Dynamics

**J09-023** Stagnation-Point Heat Transfer Near the Continuum Limit

**J09-143** Extension of a Multiscale Particle Scheme to Near-Equilibrium Viscous Flows

**J09-168** Hybrid Continuum/Molecular Simulations of Transient Gas Flows with Rarefaction

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**J09-142** Unsteady Flamelet Response in the Near Field of High-Reynolds-Number Jets

**J09-259** Combustion Analysis Using Roe's Scheme and the Spalart-Allmaras Model

**J09-263** Fluidic Flame Stabilization in a Planar Combustor Using a Transverse Slot Jet

**J09-280** Investigation of Dynamics of Lean Turbulent Premixed Flames by Rayleigh Scattering

**J09-057** Computational-Fluid-Dynamics-Based Kriging Optimization Tool for Aeronautical Combustion Chambers

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**J09-243** Numerical Analysis of Film Cooling in Advanced Rocket Nozzles

**J09-154** Phase Synchronization of Vortex Shedding from Two Circular Cylinders Using Plasma Actuators

**J09-100** Boundary-Layer Separation Due to Combustion-Induced Pressure Rise in a Supersonic Flow

**J09-113** Open-Loop Control of Disk Wakes

**J09-209** Aerodynamic Stall Suppression on Airfoil Sections Using Passive Air-Jet Vortex Generators

**J09-110** Simulation and Optimization of Flow Control Strategies for Novel High-Lift Configurations

**J09-082** Accuracy of Bhatnagar-Gross-Krook Scheme in Solving Laminar Viscous Flow Problems

**J09-213** Flow Control Predictions Using Unsteady Reynolds-Averaged Navier-Stokes Modeling: A Parametric Study

**J09-207** Fluidic Control of Separation Over a Hemispherical Turret

**J09-248** Proper Orthogonal Decomposition Analysis of Separated and Reattached Pressure Gradient Flows

**J09-152** Smoke-Wire Flow Visualization in Separated Flows at Relatively High Velocities

**J09-174** Computational and Experimental Investigation of a Nonslender Delta Wing

**J09-200** Measurements of Fluctuating Pressures on a Circular Cylinder in Subsonic Cross Flow

**J09-056** Implicit Large-Eddy Simulation of Swept-Wing Flow Using High-Resolution Methods

**J09-001** High-Resolution Reynolds-Averaged Navier-Stokes Flow Predictions over Axisymmetric Bodies with Tapered Tails

**J09-107** Accuracy of Local and Nonlocal Linear Stability Theory in Swept Separation Bubbles

**J09-030** Improvement of Delayed-Detached Eddy Simulation Applied to Separated Flow over Missile Fin

**J09-039** Flow Models for a Vortex Cell

**J09-071** Active Control of Tip-Flap Loads

**J09-218** Optical Characterization of a Simulated Weakly Compressible Shear Layer: Unforced and Forced

**J09-255** High-Fidelity Simulation of Transitional Flows Past a Plunging Airfoil

**J09-028** Airfoil Stall Suppression by Use of a Bubble Burst Control Plate

### **Shock Waves and Detonations**

**J09-205** Compressible Boundary-Layer Predictions at High Reynolds Number Using Hybrid LES/RANS Methods

**J09-032** Experimental Study of a Mach 3 Compression Ramp Interaction at  $Re(\theta) = 2400$

**J09-121** Viscous Effects in Steady Reflection of Strong Shock Waves

**J09-131** Equation of State for Energetic Structural Materials

**J09-051** 2-D Euler Shape Design on Nonregular Flows Using Adjoint Rankine-Hugoniot Relations

**J09-112** Direct Numerical Simulation of a Reflected-Shock-Wave/Turbulent-Boundary-Layer Interaction

**J09-249** Effects of Meteorological Variability on Sonic Boom Propagation from Hypersonic Aircraft

**J09-277** Ghost Fluid Methods for Strong Shock Interactions Part 1: Fluid-Fluid Interfaces

**J09-278** Ghost Fluid Methods for Strong Shock Interactions Part 2: Immersed Solid Boundaries

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**J09-165** Acoustically Nonreflecting and Reflecting Boundary Conditions for Vorticity Injection in Compressible Solvers

**J09-139** Flowfield Downstream of Circular Cylinders Immersed Within Thick Boundary Layers

**J09-200** Measurements of Fluctuating Pressures on a Circular Cylinder in Subsonic Cross Flow

**J09-026** Model for Deformation of Drops and Liquid Jets in Gaseous Crossflows

**J09-010** Laplacian Equivalents to Subsonic Potential Flows

**J09-137** Implicit Weighted Essentially Non-oscillatory Schemes with Antidiffusive Flux for Compressible Viscous Flows

**J09-287** Modeled Lattice Boltzmann Equation and the Constant-Density Assumption

**J09-005** Geometrical Installation and Deformation Effects in High-Lift Flows

**J09-015** Extremum-Seeking Control of Subsonic Cavity Flow

### **Supersonic Flow**

**J09-032** Experimental Study of a Mach 3 Compression Ramp Interaction at  $Re(\theta) = 2400$

**J09-078** Pressure, Temperature and Velocity Measurements in Underexpanded Free Jets Using Laser-Induced Fluorescence Imaging

**J09-220** Supersonic Flutter Analysis Based on a Local Piston Theory

**J09-281** Pressure Oscillations from Cavities with Ramp

**J09-127** Dynamics of Shock Dispersion and Interactions in Supersonic Freestreams with Counterflowing Jets

**J09-162** Shock-Wave/Boundary-Layer Interactions in a Model Scramjet Intake

**J09-235** Experimental Studies on the Limiting Tab

**J09-003** Evaluation of Euler Fluxes for Hypersonic Flow Computations

**J09-060** Microramp Control of Supersonic Oblique Shock-Wave/Boundary-Layer Interactions

**J09-141** Acoustic Measurements of High-Speed Jets from Rectangular Nozzle with Thrust Vectoring

**J09-112** Direct Numerical Simulation of a Reflected-Shock-Wave/Turbulent-Boundary-Layer Interaction

**J09-019** Procedure to Validate Direct Numerical Simulations of Wall-Bounded Turbulence Including Finite-Rate Reactions

**J09-109** Suppression of Cavity Loads Using Leading-Edge Blowing

**J09-077** Density Measurements in a Supersonic Microjet Using Miniature Rainbow Schlieren Deflectometry

**J09-203** Aero-Optic Distortion in Transonic and Hypersonic Turbulent Boundary Layers

**J09-225** Shock-Train Structure Resolved with Absorption Spectroscopy Part I: System Design and Validation

**J09-267** Hysteric Phenomenon of Underexpanded Moist Air Jet

### **Transonic Flow**

**J09-151** Oscillatory Behavior of Transonic Aeroelastic Instability Boundaries

**J09-186** Hermite-Based Mesh Adaptation for Functional Outputs Improvement in Fluid Flow Simulation

**J09-029** Improvement of Stability and Accuracy for Weighted Essentially Nonoscillatory Scheme

**J09-051** 2-D Euler Shape Design on Nonregular Flows Using Adjoint Rankine-Hugoniot Relations

**J09-137** Implicit Weighted Essentially Non-oscillatory Schemes with Antidiffusive Flux for Compressible Viscous Flows

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**J09-065** Large Eddy Simulation of Plasma-Based Control Strategies for Bluff Body Flow

**J09-195** Mode Conversion in Acoustically Modulated Confined Jets

**J09-111** Large-Eddy Simulation of a Round Jet in Crossflow

**J09-258** Variable-Frequency Fluidic Oscillator Driven by a Piezoelectric Bender

**J09-281** Pressure Oscillations from Cavities with Ramp

**J09-274** Numerical Prediction of Exhaust Fan-Tone Noise from High-Bypass Aircraft Engines

**J09-066** Experimental and Numerical Study of Forward Flight Aerodynamics of Insect Flapping Wing

**J09-201** Alleviation of Pressure Rise from a High-Speed Train Entering a Tunnel

**J09-230** Helmholtz Resonance of Pitot Pressure Measurements in Impulsive Hypersonic Test Facilities

**J09-245** Bifurcation Behavior of Airfoil Undergoing Stall Flutter Oscillations in Low-Speed Wind Tunnel

**J09-181** Adjoint-Based Sensitivity Formulation for Fully Coupled Unsteady Aeroelasticity Problems

**J09-233** Computations of Flow Past a Circular Cylinder Using a Continuous-Turbulence Model

**J09-165** Acoustically Nonreflecting and Reflecting Boundary Conditions for Vorticity Injection in Compressible Solvers

**J09-239** Effect of Rotation Kinematics and Angle of Attack on Flapping Flight

**J09-042** Flat-Plate Interaction with the Near Wake of a Square Cylinder

**J09-043** Self-Induced Roll Oscillations of Nonslender Wings

**J09-189** Experimental Study of Shock Oscillation over a Transonic Supercritical Profile

**J09-018** Large Eddy Simulation of Self-Sustained Flow Instabilities in Cavities Using the Lattice-Boltzmann Method

**J09-031** Implicit Nonlinear Frequency-Domain Spectral-Difference Scheme for Periodic Euler Flow

**J09-046** Numerical Study of an Oscillating Airfoil in Transonic Buffeting Flows

**J09-255** High-Fidelity Simulation of Transitional Flows Past a Plunging Airfoil

**J09-283** Interaction of a Microwave-Generated Plasma with a Hemisphere Cylinder at Mach 2.1

**J09-286** Lift Response of a Stalled Wing to Pulsatile Disturbances

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**J09-288** Flow Visualization Study of the Aerodynamics of Modeled Dragonfly Wings

**J09-287** Modeled Lattice Boltzmann Equation and the Constant-Density Assumption

**J09-121** Viscous Effects in Steady Reflection of Strong Shock Waves

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**J09-099** Side Force Suppression by Dimples on Ogive-Cylinder Body

**J09-195** Mode Conversion in Acoustically Modulated Confined Jets

**J09-179** Solution Adaptive Mesh Generation Using Feature-Aligned Embedded Surface Meshes

**J09-104** Experimental Investigation of the Jets in Crossflow: Nonswirling Flow Case

**J09-065** Large Eddy Simulation of Plasma-Based Control Strategies for Bluff Body Flow

**J09-216** Axisymmetric Synthetic Jets: An Experimental and Theoretical Examination

**J09-200** Measurements of Fluctuating Pressures on a Circular Cylinder in Subsonic Cross Flow

**J09-219** Criteria for Vortex Breakdown Above High-Sweep Delta Wings

**J09-174** Computational and Experimental Investigation of a Nonslender Delta Wing

**J09-233** Computations of Flow Past a Circular Cylinder Using a Continuous-Turbulence Model

**J09-043** Self-Induced Roll Oscillations of Nonslender Wings

**J09-175** Turbulent Tip Vortex Measurements Using Dual-Plane Stereoscopic Particle Image Velocimetry

**J09-167** Planar Velocimetry of a Fin Trailing Vortex in Subsonic Compressible Flow



**J09-012** Direct and Large-Eddy Simulations of Merging in Corotating Vortex System

**J09-041** Compressibility Effect in Vortex Identification

**J09-038** Manipulating the Flow over Spherical Protuberance in a Turbulent Boundary Layer

**J09-218** Optical Characterization of a Simulated Weakly Compressible Shear Layer: Unforced and Forced

**J09-255** High-Fidelity Simulation of Transitional Flows Past a Plunging Airfoil

**J09-039** Flow Models for a Vortex Cell

### Wave Motion and Sloshing

**J09-201** Alleviation of Pressure Rise from a High-Speed Train Entering a Tunnel

## GUIDANCE, CONTROL, AND DYNAMICS TECHNOLOGY

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**J09-190** Active Aeroelastic Control Over a Multisurface Wing: Modeling and Wind-Tunnel Testing

**J09-242** Toward Understanding and Optimizing Separation Control Using Microjets

### Control Theory

**J09-015** Extremum-Seeking Control of Subsonic Cavity Flow

**J09-180** QZ-Based Algorithm for System Pole, Transmission Zero, and Residue Derivatives

**J09-102** Matrix-Free Methods for the Stability and Control of Boundary Layers

### Dynamics

**J09-090** Joint Uncertainty Propagation in Linear Structural Dynamics Using Stochastic Reduced Basis Methods

**J09-020** Efficient Mode Based Computational Approach for Jointed Structures: Joint Interface Modes

**J09-261** Numerical Investigation of Constrained Direct Solutions Using Hamilton's Law

**J09-262** Theorem of Expended Power and Finite Element Formulation: Hamiltonian Mechanics Framework

**J09-053** Eigensensitivity-Based Optimal Damp-er Location in Variable Geometry Trusses

### Flight Mechanics

**J09-054** Dynamics Modeling and Simulation of Flexible Airships

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**J09-025** Control of Beams and Chains Through Distributed Gyroscopes

### Launch Vehicle Dynamics

**J09-222** Statistical Combination of Time-Vary-ing Loads

### Optimization Techniques

**J09-058** Problem Formulations and Treatment of Uncertainties in Aerodynamic Design

**J09-053** Eigensensitivity-Based Optimal Damp-er Location in Variable Geometry Trusses

**J09-116** Concise Airfoil Representation via Case-Based Knowledge Capture

### Signal Processing

**J09-279** Physics-Based Foundation for Empiri-cal Mode Decomposition

### Spacecraft Dynamics

**J09-172** Blunted-Cone Heat Shields of Atmos-pheric Entry Vehicles

### Spacecraft Guidance and Control

**J09-074** Planar Fluorescence Imaging and Three-Dimensional Reconstructions of Capsule Reac-tion-Control-System Jets

### Structural Control

**J09-158** How Membrane Loads Influence the Modal Damping of Flexural Structures

**J09-228** Modeling and Analysis of Semi-Active Dampers in Periodic Working Environments

**J09-270** Analysis and Simulation of Optimal Vibration Attenuation for Underactuated Mechani-cal Systems

**J09-044** Nonlinear Control of a Membrane Mirror Strip Actuated Axially and in Bending

**J09-025** Control of Beams and Chains Through Distributed Gyroscopes

### System Identification

**J09-088** Bayesian Wavelet Methodology for Damage Detection of Thermal Protection System Panels

**J09-279** Physics-Based Foundation for Empiri-cal Mode Decomposition

**J09-133** Time-Domain In Situ Characterization of Acoustic Liners in a Flow Duct

## INTERDISCIPLINARY TOPICS

### Analytical and Numerical Methods

**J09-170** Power Balance in Aerodynamic Flows

**J09-097** Hybrid Representations of Coupled Nonparametric and Parametric Models for Dynamic Systems

**J09-088** Bayesian Wavelet Methodology for Damage Detection of Thermal Protection System Panels

**J09-115** Application of p-Multigrid to Discon-tinuous Galerkin Formulations of the Euler Equations

**J09-240** Noise Source Localization and Optimi-zation of Phased-Array Results

**J09-055** Nonlinear Analytical Approach for Preliminary Sizing of Discrete Composite String-er Terminations

**J09-186** Hermite-Based Mesh Adaptation for Functional Outputs Improvement in Fluid Flow Simulation

**J09-180** QZ-Based Algorithm for System Pole, Transmission Zero, and Residue Derivatives

**J09-223** Continuum Aeroelastic Model for a Folding-Wing Configuration

**J09-117** Direct Quadrature Method of Moments Solution of Fokker-Planck Equations in Aero-elasticity

**J09-150** Probability Distributions of Natural Frequencies of Uncertain Dynamic Systems

**J09-168** Hybrid Continuum/Molecular Simula-tions of Transient Gas Flows with Rarefaction

**J09-184** External Mean Flow Influence on Noise Transmission Through Double-Leaf Aeroelastic Plates

**J09-045** Efficient Methods for Time-Dependent Fatigue Reliability Analysis

**J09-058** Problem Formulations and Treatment of Uncertainties in Aerodynamic Design

**J09-007** Uncertainty and Reliability Analysis of Fluid-Structure Stability Boundaries

### Lasers and Laser Applications

**J09-079** Multi-Property Measurements at High Sampling Rates Using Rayleigh Scattering

**J09-078** Pressure, Temperature and Velocity Measurements in Underexpanded Free Jets Using Laser-Induced Fluorescence Imaging

**J09-273** Development of a High-Speed Three-Dimensional Flow Visualization Technique

**J09-246** Molecular Tagging Using Vibrationally Excited Nitric Oxide in an Underexpanded Jet Flowfield

**J09-247** Novel Technique for Measurements of Continuous Liquid Jet Core in an Atomizer

**J09-125** Effect of Laser-Induced Upstream Cylindrical Blast Waves on a High-Velocity Rocket

### Multidisciplinary Design Optimization

**J09-016** Multiresponse and Multistage Meta-modeling Approach for Design Optimization

**J09-116** Concise Airfoil Representation via Case-Based Knowledge Capture

**J09-164** Dimensionality Reduction Approach for Response Surface Approximations: Application to Thermal Design

**J09-198** Optimization of a Morphing Wing Based on Coupled Aerodynamic and Structural Constraints

**J09-251** Globally Convergent Optimization Al-gorithm Using Conservative Convex Separable Diagonal Quadratic Approximations

**J09-093** Reduction of Ordering Effect in Reli-ability-Based Design Optimization Using Dimen-sion Reduction Method

**J09-147** Sensitivity Derivatives for Plasma Discharge Simulations

**J09-149** Geometry Parameterization Method for Multidisciplinary Applications

**J09-022** Multiple-Surrogate Approach to Heli-copter Rotor Blade Vibration Reduction

**J09-057** Computational-Fluid-Dynamics-Based Kriging Optimization Tool for Aeronautical Combustion Chambers

**J09-096** Consequences of Material Addition for a Beam Strip in a Thermal Environment

**J09-215** Cross Validation Can Estimate How Well Prediction Variance Correlates with Error

**J09-052** Interval-Based Multi-Objective Optimi-zation of Aircraft Wings Under Gust Loads

### Reliability, Maintainability, and Logistics Support

**J09-088** Bayesian Wavelet Methodology for Damage Detection of Thermal Protection System Panels

**J09-093** Reduction of Ordering Effect in Reli-ability-Based Design Optimization Using Dimen-sion Reduction Method

**J09-150** Probability Distributions of Natural Frequencies of Uncertain Dynamic Systems

**J09-197** Localization of a Breathing Crack Using Super-Harmonic Signals due to System Non-linearity

**J09-007** Uncertainty and Reliability Analysis of Fluid-Structure Stability Boundaries

**J09-045** Efficient Methods for Time-Dependent Fatigue Reliability Analysis

**J09-067** Nonprobabilistic Interval Reliability Analysis of Wing Flutter

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- J09-273** Development of a High-Speed Three-Dimensional Flow Visualization Technique  
**J09-079** Multi-Property Measurements at High Sampling Rates Using Rayleigh Scattering  
**J09-076** Using Pressure- and Temperature-Sensitive Paint on the Aftbody of a Capsule Entry Vehicle  
**J09-230** Helmholtz Resonance of Pitot Pressure Measurements in Impulsive Hypersonic Test Facilities

**Safety**

- J09-045** Efficient Methods for Time-Dependent Fatigue Reliability Analysis

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- J09-238** Flow-Induced Vibrations of Pressure/Temperature Sensors  
**J09-027** Two-Dimensional Visualization of Turbulent Wall Shear Stress Using Micropillars  
**J09-188** Extension of the Shear-Lag Solution for Structurally Attached Ultrasonic Active Sensors

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- J09-222** Statistical Combination of Time-Varying Loads

**Launch Vehicle and Sounding Rocket Systems**

- J09-138** Hybrid Empirical/Computational Aeroacoustics Methodology for Rocket Noise Modeling

**Propulsion and Propellant Systems**

- J09-126** Hydrogen-Helium Leak Detection at Elevated Pressures and Low Temperatures

**Simulation**

- J09-222** Statistical Combination of Time-Varying Loads

**Structural Design (Including Loads)**

- J09-238** Flow-Induced Vibrations of Pressure/Temperature Sensors

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- J09-118** Design-Oriented Thermostructural Analysis with External and Internal Radiation, Part 2: Transient Response

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- J09-130** Instantaneous Flame Anchor Measurements Behind a Rearward-Facing Step  
**J09-226** Shock-Train Structure Resolved with Absorption Spectroscopy Part II: Analysis and CFD Comparison  
**J09-225** Shock-Train Structure Resolved with Absorption Spectroscopy Part I: System Design and Validation  
**J09-280** Investigation of Dynamics of Lean Turbulent Premixed Flames by Rayleigh Scattering

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- J09-130** Instantaneous Flame Anchor Measurements Behind a Rearward-Facing Step

- J09-104** Experimental Investigation of the Jets in Crossflow: Nonswirling Flow Case

- J09-257** Comparison of Direct and Indirect Combustion Noise Mechanisms in a Model Combustor

- J09-263** Fluidic Flame Stabilization in a Planar Combustor Using a Transverse Slot Jet

- J09-280** Investigation of Dynamics of Lean Turbulent Premixed Flames by Rayleigh Scattering

- J09-142** Unsteady Flamelet Response in the Near Field of High-Reynolds-Number Jets

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- J09-161** Acoustic Damping of a Helmholtz Resonator with an Oscillating Volume

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- J09-224** Comparison of Hot-Fire and Cold-Flow Observations of Nitrogen Tetroxide/Monomethylhydrazine Impinging Combustion

- J09-247** Novel Technique for Measurements of Continuous Liquid Jet Core in an Atomizer

- J09-026** Model for Deformation of Drops and Liquid Jets in Gaseous Crossflows

- J09-047** Influence of Breakup Regimes on the Droplet Size Produced by Splash-Plate Nozzles

**Emissions and Noises**

- J09-194** Acoustic Scattering by a Localized Thermal Disturbance

- J09-257** Comparison of Direct and Indirect Combustion Noise Mechanisms in a Model Combustor

- J09-014** Algorithm for the Nonlinear Propagation of Broadband Jet Noise

- J09-135** Pylon-Based Jet Noise Suppressors  
**J09-037** Sound Radiation from a Bypass Duct with Bifurcations

**Engine Cooling and Heat Transfer**

- J09-241** Numerical Analysis of Three-Dimensional Flow of Supercritical Fluid in Cooling Channels

**Fuels and Propellants, Properties of**

- J09-126** Hydrogen-Helium Leak Detection at Elevated Pressures and Low Temperatures

**Gas Turbine Engines**

- J09-057** Computational-Fluid-Dynamics-Based Kriging Optimization Tool for Aeronautical Combustion Chambers

- J09-161** Acoustic Damping of a Helmholtz Resonator with an Oscillating Volume

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- J09-145** Experimental Investigation of Unstart in an Inlet/Isolator Model in Mach 5 Flow

**Ignition**

- J09-040** Effects of Scalar Dissipation Rate Fluctuations on Autoignition of Hydrogen/Air Mixture

- J09-224** Comparison of Hot-Fire and Cold-Flow Observations of Nitrogen Tetroxide/Monomethylhydrazine Impinging Combustion

**Liquid Rocket Engines**

- J09-224** Comparison of Hot-Fire and Cold-Flow Observations of Nitrogen Tetroxide/Monomethylhydrazine Impinging Combustion

- J09-243** Numerical Analysis of Film Cooling in Advanced Rocket Nozzles

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- J09-050** Asymptotic Solutions for Low-Magnetic-Reynolds-Number Gas Flows Inside a Two-Dimensional Channel

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